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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/573,929

**Applicant(s)**

KUMAKI ET AL.

**Examiner**

Phat X. Cao

**Art Unit**

2814

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-25 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 8-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-7 and 13-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4-6, 7, 13-15, 18-19, 20-22, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Liao et al (US 6,717,358).

Regarding claims 1, 20, 21, and 22, Liao (Figs. 1 and 2) discloses a light-emitting element comprising: a first layer 120.1 containing a light-emitting material (column 3, lines 57-59); a second layer 131 containing an organic compound, an electron-supplying material and a metal oxide (column 7, lines 60-67 through column 8, lines 1-15); a third layer 132 including a transparent conductive film comprising a metal (column 9, lines 6-15); and a fourth layer 133 containing a hole-transporting medium (column 8, lines 15-17), wherein the first layer, the second layer, the third layer and the fourth layer are sandwiched between a first electrode 110 and a second electrode 140, wherein the first layer, the second layer, the third layer, the fourth layer, and the second electrode are provided sequentially over the first electrode 110, wherein the fourth layer 133 is in electrically contact with the second electrode 140, wherein the second electrode 140 has a layer containing metal (column 13, lines 1-6), and wherein the transparent conductive film comprises a material selected from zinc oxide and molybdenum oxide (column 9, lines 6-15).

Regarding claims 4-7, Liao (Figs. 1 and 2) further discloses that the organic compound contained in the second layer 131 is an electron-transporting organic compound comprising a metal complex (column 7, lines 60-67), and the electron-supplying material is alkaline/rare-earth metal selected from Li and Cs (column 8, lines 1-15).

Regarding claims 13-15, Liao (Figs. 1 and 2) further discloses that the fourth layer 133 contains an organic compound doped with an electron-accepting material (column 8, lines 35-48), and the organic compound is a hole transporting material having an aromatic amine skeleton (column 8, lines 15-34).

Regarding claims 18-19 and 25, Liao (Figs. 1 and 2) also discloses that the light-emitting device has the second electrode 140 made of reflective metal (i.e., Mg:Ag) (column 13, lines 3-5) and is applied in many electronic device applications (column 1, lines 20-22).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 16-17 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al in view of Matsumoto et al (US 2005/0098207).

Regarding claims 16-17, Liao discloses that the electron accepting material is a compound of TCNQ (column 8, lines 35-45), but Liao does not disclose that the electron accepting material is a metal oxide.

However, Matsumoto teaches an organic device comprising a hole transporting layer including an electron accepting material made of TCNQ or a metal oxide of Vanadium oxide (par. [0010], last 6 lines). Accordingly, it would have been obvious to use TCNQ or Vanadium oxide as an electron accepting material because of their equivalence for their use in the LED technology and the selection of any of these known equivalents to be used as an electron accepting material of Matsumoto would be within the level of ordinary skill in the art.

Regarding claim 23, Liao discloses that the metal oxide includes in the second layer 131 containing an organic compound (column 7, lines 60-67). Liao does not disclose that the metal oxide is selected from the materials as claimed.

However, it has been held that selecting a known material on the basis of its suitability for the intended use is a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. There was absent evidence of disclosure of criticality for selecting a metal oxide material as claimed. Therefore, it would have been obvious to use the metal oxide material as claimed for the metal oxide material of Liao because of their equivalence for their use in the semiconductor art as the n-type dopant and the selection of any of these known metal oxide materials to be used as an n-type dopant material for the n-type doped organic layer of Liao would be within the level of ordinary skill in the art.

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5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al (US 6,717,358) in view of Yamazaki et al (US 6,734,457).

Liao does not specifically disclose that the light emitting material is a triplet excited light-emitting material.

However, Yamazaki teaches a conventional light-emitting device comprising a triplet excited light-emitting material (column 3, lines 13-25). Accordingly, it would have been obvious to use a triplet excited light-emitting material as a material for the light emitting material of Liao because such triplet excited light-emitting material is well known and commonly used in the art for improving light emission efficiency, as taught by Yamazaki (column 3, lines 26-40).

### ***Double Patenting***

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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7. Claims 1, 4-7, 13-17, 18-19, and 20-25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 15-31 of copending Application No. 10/575,202 (or US 2007/0090376 – cited in IDS). Although the conflicting claims are not identical, they are not patentably distinct from each other because both copending Application and instant application claim a light-emitting element including a first layer, a second layer, a third layer, and the fourth layer are sandwiched between an anode and a cathode. Moreover, independent claims 1, 20, 21, and 22 in the instant application are either broader version of independent claim 15 of the copending application or are obvious variations thereof. For example, claim 15 in copending application claims "wherein the cathode has a layer containing reflective metal", whereas claims 1 and 20-22 in the instant application claims "wherein the second electrode has a layer containing metal". The fact is that both copending application and the instant application are claiming common subject matter.

Dependent claims 4-7, 13-17, 18-19, and 23-25 of the instant application claim the same subject matters as the subject matters claimed in dependent claims 17-31 of the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

#### ***Response to Arguments***

8. Applicant's arguments filed 10/10/08 have been fully considered but they are not persuasive.

Applicant argues that Figs. 1 and 2 of Liao do not suggest the fourth layer 133 is in contact with the second electrode 140.

This argument is not persuasive. The examiner recognizes that Liao does suggest "the fourth layer is in contact with the second electrode" as amended because as broadly interpreted, the fourth layer 133 is in electrically contact with the second electrode 140.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (571)272-1703. The examiner can normally be reached on M-F.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571)272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. X. C./  
Primary Examiner, Art Unit 2814

/Phat X Cao/  
Primary Examiner, Art Unit 2814